

Hardy Fern Foundation NEWSLETTER

Editor Sue Olsen

VOLUME 2 NUMBER 3 SUMMER 1992



President's Message

GUY HUNTLEY

Wonderful and exciting things are happening with the Hardy Fern Foundation! As your new president, I, like most of the board members, am trying hard to keep pace!

We've deemed Member's Day 1992 (May 31st at the Rhododendron Species Foundation) to be a good success, thanks to the small but interested bunch of members and soon-to-be-members who attended. Features were: free admission to the garden, a fern identification class held by Sue Olsen, a guided tour of the fern plantings, and a demonstration on fern propagation by Sylvia Duryee. My sincere thanks to all the board members who worked so hard at planning and putting on that wonderful day. If you did not attend member's day this year, please plan to join us next year!

June 4th was our annual meeting, held in conjunction with the Northwest Horticultural Society's Fern Festival. That night saw the approval of the new board members and directors. We are all sorry to see the term of our founding President, Sue Olsen, come to an end. It is only through her vision, organizational skills, patience, and persistence that the Hardy Fern Foundation has come as far as it has, and we will miss her leadership greatly. It will be only

through heavy support of her and the other board members that I will be able to fulfill my term as president with anything close to a semblance of achievement.

On June 8th we shipped ferns to those members who ordered them - others had previously picked up their plants at the annual meeting. We sincerely appreciate those of you who help support the HFF through your purchases. A special heart-felt thanks, though, goes to Stephanie McGowan who oversaw the whole shipping and order handling process. She and other dedicated souls spent many hot

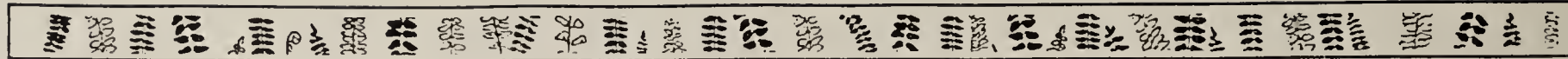
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Member's Day - L-R Betty Shaub, Barbara Carman, Sue Entz, Tom Gillies, Bernedine Lund, Suzanne Hattery, Phillip Lund



President's Message

continued from page 1

hours in the greenhouse, sorting, packing, and double checking. Thank you Stephanie - we couldn't have done it without you!

The 16th of June found me in Birmingham, Alabama, where I met the fine folks of the Birmingham Fern Society (please see related article page 3). The Birmingham Botanical Garden has been selected as one of the satellites for the Hardy Fern Foundation, and it was truly an honor to be invited there to see their Fern Glade, and get their insights and ideas on the HFF.

Upon my return we evaluated the fern plantings in our primary garden at the Rhododendron Species Foundation. Well over 100 separate species, varieties, or types were measured, counted, and appraised. For more on that process please see the article elsewhere in this newsletter.

All the while, there is and has been the continuing work on a myriad of other projects: fern collections and fern sales; planning and plantings at satellite gardens; assessing the evaluations members have sent of the ferns in their gardens; a demonstration garden was put in at the University of Northern Colorado in Greeley; and it's already time to start planning our booth at the Northwest Flower and Garden Show next February!

Busy times indeed - but so exciting! It is such a privilege to be chosen president of such an active organization and to serve such a superb assemblage of members - I look forward this term very much! Thank you!



XV INTERNATIONAL BOTANICAL CONGRESS, TOKYO

Congress Center of Pacifico,
Yokohama, Japan

August 28→September 3, 1993

XV International Botanical Congress, Tokyo

Given under the auspices of the International Union of Biological Sciences the XV International Botanical Congress, Tokyo, Japan.

General Information

The XV International Botanical Congress (XVIBC), Tokyo, will be organized to provide an opportunity for discussions in all branches of plant biology, and particularly of interdisciplinary subjects and of aspects of wider significance.

Congress Site

The XV IBC will be convened at the Congress Center of Pacifico, MM21, Yokohama.

Duration of Congress

August 28 (Sat) through September 3 (Fri), 1993.

Language

The working language will be English. No simultaneous translation service will be provided. All Congress publications will be prepared in English.

Excursions

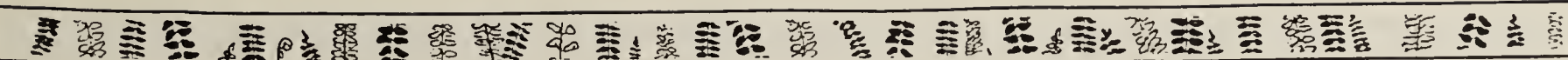
(There will be a pre-congress fern trip.) Pre-and post-Congress scientific field trips will be arranged throughout Japan as well as in some East and Southeast Asian countries. There will be a number of full- and half-day excursions by bus to local places of scientific, cultural and scenic interest.

The Chairman of the Excursion Committee is Kyoji Yoda, Department of Botany, Faculty of Science, Osaka City University, Sugimoto 3-3-138, Sumiyoshiku, Osaka 558, Japan. Further details will be given in the Second Circular.

For information contact:

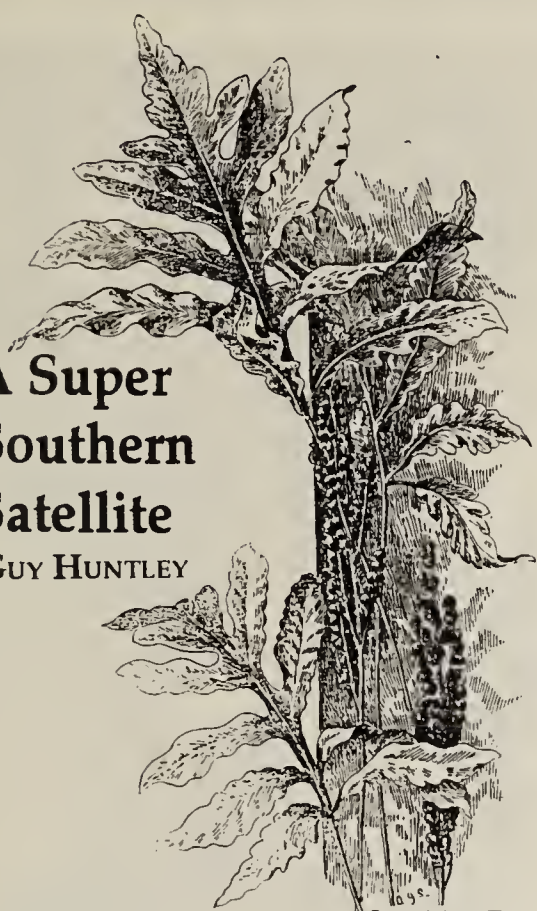
International Communications, Inc. (ICS)

Kasho Bldg. 2F, 2-14-9 Nihombashi, Chuo-Ku, Tokyo 103, Japan.
FAX:(81)-3-273-2445. TELEX: 72-0222-3585 ICS J



A Super Southern Satellite

GUY HUNTLEY



Sensitive Fern
Onoclea sensibilis

On June 17th I had the privilege of addressing the Birmingham Fern Society at the Birmingham Botanical Gardens. The BBG has been selected as one of our satellite gardens, and it was a genuine pleasure to be invited down to speak to them about the Hardy Fern Foundation, meet the people involved and take a look at the planting site.

The Fern Glade at the BBG lies on a hillside. Pleasant paths wind through the patches of ferns, occasionally crossing the small stream which rambles through the glade. Large swaths of the native *Thelypteris kunthii* (Southern Wood Fern) and *Onoclea sensibilis* (Sensitive Fern) are prominent features, as are clumps of the lovely *Selaginella involvens* (Arborvitae Fern) and *Adiantum capillus-veneris* (Southern Maidenhair). I got my first look at the enchanting little *Polypodium polypodioides* (the so-called Resurrection Fern), which was nestled among the rocks and here and there on the trees. Other

ferns in the glade include *Hypolepis* (Bramble Fern), *Athyrium filix-femina* var. *angustum* 'Rubellum' (Red stemmed Lady Fern), *Woodwardia areolata* (Netted Chain Fern) and *Athyrium pycnocarpon* (Glade Fern). Along one side of the stream was a large area covered with *Athyrium niponicum* 'Pictum' (Japanese Painted Fern), none of the fronds more than 8 inches tall!

The Fern Glade was dealt a severe blow on Easter Sunday of 1991, when strong winds downed a majority of the large trees which provided shade, and destroyed many of the ferns in the process. What the trees spared the Clydesdales brought in to drag them out did not, and pictures I saw of the area after the storm were extremely disheartening. Not so the scene on my visit, where dozens of new trees had been planted, paths relaid, and new areas mapped out. At the top of the glade a new shade structure was built, and it is loaded with small ferns just waiting to be planted out.

Perhaps even more appealing than the Fern Glade itself, however, are the fine folks which comprise the Birmingham Fern Society. These dedicated souls collectively put in over 2,000 hours of volunteer time each year into the glade, and those hard hours are very evident in the way the area had come along in the short 15 months since the storm. As a group they are enthusiastic, knowledgeable, interested, and generally just delightful people. I had a very enjoyable stay. All in all I feel that an excellent choice was made in selecting the BBG as a satellite, and I look forward to working with this fine organization as the HFF sends ferns for testing this Fall.

For more information on the Birmingham Fern Society - which has very reasonable dues - please contact:

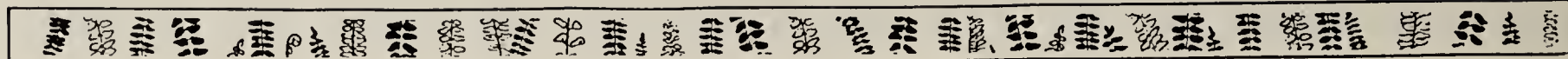
Treasurer Birmingham Fern Soc.
c/o Botanical Garden Center
2612 Lane
Birmingham, AL 35223

Thanks for the Information!

A sincere thank you to those members who submitted evaluations of the ferns planted in their own gardens. We had a good response from a variety of locations around the country, and have gleaned some very interesting bits of information. We'll include some of these in a future newsletter.

Your responses are invaluable to us, and we sincerely appreciate those of you who took time to respond. Evaluations returned this year have helped us expand our vision and better define the information the membership will find useful. Additional questions will be asked next year!

Thank you all again! And to those of you who missed the June evaluation this year, please make a point to make a fern evaluation one of your early summer traditions! A reminder and questions to answer will appear in the spring newsletter.



Ferns and Fern Allies of Japan

EDITED BY KUNIO IWATSUKI

Published by Heibonsha Ltd., Publisher, (address: 5-Banchi, 3-Bancho, Chyoda-ku, Tokyo 102 Japan) 1992. 311 pages, over 1000 color photographs. ISBN 4-582-53506-2. Price: 19,500 yen, or about \$150 US.

This magnificently illustrated volume on the pteridophytes of Japan is a real milestone in the history of regional fern floras of the world. Nearly all the 630 species of Japanese ferns and allies are figured, many with two or three photographs, showing habit, details of pinnae, sori, and scales, all very clearly printed on high quality paper. The photographs are printed 3 to 7 per page on alternating signatures with the text—8 pages of text, 8 pages of photographs. It makes for very interesting browsing to see the tremendous diversity of ferns and fern allies in Japan, especially since many of the species recently introduced to cultivation in North America are of Japanese origin. Some of their species are the same as ours or closely related, others are tropical species that we see in our greenhouses, so the photographs give us an excellent view of plants we have or are considering for cultivation.

I can honestly say that I can find no fault with the text, the reason being that it is written in Japanese. Dr. Iwatsuki informs me that an English version of the text will be published as volume one of the *New Flora of Japan* in 1994. In the meantime, English descriptions can be found in Jisaburu Ohwi's *Flora of Japan*, published by the

Smithsonian Institution, Washington, DC, in 1965.

Judging from the drawings, introductory chapters include floristic comparisons, life cycle, morphology and anatomy, phylogeny of the lower vascular plants, and hybridization. There is a key to the families, and there are descriptions and keys of the genera and species. The Latin names accompany the descriptions and the photographs, and there is an index of Latin names (and the few English common names) apart from two Japanese indices.

I highly recommend the book, in spite of the high cost and the Japanese text, for the outstanding, useful photographs with authoritative names.—John Mickel

Reprinted with permission from The Fiddlehead Forum 19 (4/5):31. 1992.

New Display Garden Planted

MARY ELLEN TONSING

The University of Northern Colorado in Greeley, Colorado is the site of the first Hardy Fern Foundation demonstration garden outside of the state of Washington. On May 26, volunteers from the Rock Alpine Garden, Denver Botanic Gardens, planted a variety of hardy ferns donated by the foundation. This completed the first phase of this display garden, which occupies approximately 1,000 square feet on the northwest corner of Ross Hall Science Center on the West campus.

The request for a fern demonstration garden came from Professor Bill Harmon, Department of



L Prof. Bill Harmon
R Mary Ellen Tonsing

Planting at the University of Northern Colorado in Greeley

Biology (Botany) at UNC. The fern garden along with a rock garden and dryland garden, with more than 1,000 species of plants not native to Colorado, are part of a "hands on" living botanical garden created by Prof. Harmon and his botany students. By having the plants right on campus, the students are able to study all phases of a fern's life by watching the growth habit as well as environmental needs. Students are responsible for the daily care of the plants in these gardens. They are expected to monitor the daily temperature extremes and amount of precipitation. All records are kept on a computer data base.

UNC is a teachers college so the experience these future teachers have living with the plants on a daily basis will be of great value to

them once they are in the classroom. And who knows how many people will be introduced to the wonderful world of ferns because of this demonstration garden?

If any of you are ever in the Denver area and would like to visit the garden, UNC is in Greeley, 50 miles north of Denver.

Greeley Planting, May 1992

Ferns from the Hardy Fern Foundation:

Asplenium trichomanes
Asplenosorus x ebenoides
Athyrium filix-femina 'Frizelliae'
Athyrium niponicum var. *pictum*
Dryopteris affinis 'Cambrensis'
 " " 'Crispa'
 " *bissetiana*
 " *dilitata* 'Jimmy Dyce'
 " *erythrosora*
 " *filix-mas undulata robusta*
 (D. *affinis* x *filix-mas* 'Robust')
 " *pycnopteroides*
Gymnocarpium dryopteris 'Plumosum'
Osmunda regalis 'Cristata'
Phyllitis scolopendrium
Phegopteris decursive-pinnata
Polystichum acrostichoides

Ferns from Mary Ellen Tonsing:

Dryopteris filix-mas
Gymnocarpium robertianum

Notes on Colorado Ferns

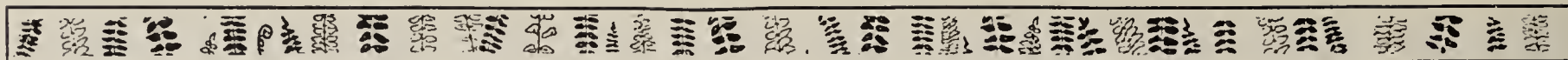
MARY ELLEN TONSING

Ferns Native to Colorado;

Adiantum capillus-veneris
Asplenium adiantum-nigrum
platyneuron
trichomanes
viride
Athyrium distentifolium var. *Americanum*
filix-femina
filix-femina var. *rubellum*
Botrychium virginianum
multifidum
lanceolatum
matricariaefolium
simplex
lunaria
Cheilanthes eatoni
feeii
fendleri
standleyi
wootonii
Cryptogramma acrostichoides
stelleri
Cystopteris bulbifera
fragilis
montana
Dryopteris dilatata
filix-mas
Onoclea sensibilis
Pellaea atropurpurea
longimucronata
suksdorfiana
occidentalis
Polypodium hesperium
Polystichum lonchitis
Pteridium aquilinum
Woodsia scopulina
oregana
mexicana

Ferns Hardy to -25°

Adiantum pedatum
pedatum var. *subpumilum*
 (aleuticum subpumilum type)
pedatum japonicum
venustum
Asplenium trichomanes
viride
Athyrium filix-femina
filix-femina, 'Dwarf form'
filix-femina 'Cristata',
 'Frizelliae', 'Victoriae',
 'Rubripes'
niponicum var. *pictum*
otophorum
vidalii
Cryptogramma acrostichoides
Cystopteris bulbifera
Diplazium japonicum
Dryopteris abbreviata 'Crispa'
affinis
championii
erythrosora
filix-mas
filix-mas 'Bollandiae',
 'Crispa Cristata', 'Barnesii',
 'Linearis Cristata', 'Linearis
 Polydactyla'
goldiana
intermedia
lacera
marginalis
nipponensis
polylepis
pseudo-mas
Gymnocarpium dryopteris
robertianum
Osmunda regalis
Pellaea breweri
truncata
Phyllitis scolopendrium
Polystichum aculeatum
braunii
makinoi
setiferum
setiferum 'Divisilobum'
squarrosus
tsus-simense
tripteron



The Fern Fisherman; A New Zealand Story

GEORGE SCHENK, AUCKLAND,
NEW ZEALAND

Reprinted from *Horticulture Northwest*, Vol. 13, Number 2, Summer 1986, with permission from Sallie Allen, Editor.

New Zealand, with the world's greatest diversification of form among its native ferns, might well be considered the world capital of fernkind. In fact, that notion is somewhat recognized in one of the country's two popular symbols (the morose-appearing kiwi is the other), a frond of silver fern (*Cyathea dealbata*) is displayed on flags, pennants, and blazers. Ferns have always stood as hearty as a rugby crowd and as numerous, in the woods of the land...but not always so in its gardens.

Until 1976, a mere handful of fern varieties were offered by New Zealand nurseries; these were collected natives and non-natives grown from division. Virtually no ferns were being grown from spores. All that has changed with the work of a former fisherman, Noel Crump, of the Auckland area. Ferns had been his hobby for years. He mulled over his feeling that the paucity of ferns in New Zealand nurseries frustrated not only himself, but probably a mass of gardeners. There was, he felt, a sizeable market awaiting, and gambling on his instincts, he quit fishing and plunged into fern production.

Now, a decade later, he sells tens-of-thousands of ferns annually, of 200 kinds, primarily species, but many foliage forms as well. Mr. Crump's ferns sell mainly to

gardeners in Auckland, a city of 800,000, and its surrounding communities; all his business takes place in a nation of merely 3,100,000 people (and 75 million sheep, one might add).

The Crump fern nursery is located in the farm and pasture district of Whenaupai outside Auckland, an area open for miles around to the considerable winds and summer droughts of North Island, New Zealand. Shade and shelter for ferns are provided by 25,000 square feet of shade houses: skeletal timber structures covered with soft, green-colored nylon netting. This New Zealand-made material is designed to block out 50 percent of the sun, and so, create an intensity of shade optimum to ferns and nearly all shade plants. Noel Crump built his nylon shade houses seven-and-one-half years ago, and judges that the material will be good for another seven-and-one-half years.

Heavy snowfall in one's region would seem the only deterrent to using this light and graceful new stuff. I do not know what is going on in California or in other states with areas where winters are snowless, but in North Island, New Zealand, and also in the Philippines, I notice shade houses of nylon netting have lately made lath houses obsolete. Nearly every nursery in need of shade now uses this new material. The netting will take a certain... unknown...weight of snow. In New Zealand's snowy South Island, nurseryman James LeComte is experimenting with nylon netting, and he tells me that a shade roof formed of it has withstood a four inch depth of dry snow without damage. The material bellied with the weight of the snow, but tautened up again

when the snow melted.

Noel Crump grows his ferns from spores obtained from Societies and individuals around the world. His private collection now amounts to 750 kinds, and he intends to make it public eventually by turning his property into a botanical park. Chief sources have been the American Fern Society (through correspondence with Seattle's Neill Hall, who has handled the spore exchange for many years)* and the Los Angeles Fern Society. The spores are sown on peat and sand, and the sporeling plants are potted up—correction—bagged up in the same rooting mix. Polythene bags, ugly black, but ever so handy, light-weight, tough, cannot cut your hands, and a beauty when it comes to disposing of them — are now used by North Island nurseries for the growing of all plants, except aquatics, wash tub-size bags for growing trees, popcorn bag size bags for ferns, tobacco poke-size bags for alpine plants, these same black bags are also being used by rock garden nurseries in England. I seem to be telling a tale of plastics as much as ferns, but it undoubtedly forecasts something of the future of production in western North America.

The Crump Fern Nursery, whose total staff and management consists of the man himself, together with his wife, Fijian-born of Indian ancestry, and one helper, a pleasant, grandmotherly woman of New Zealand-English stock, now produces its 200 kinds of ferns in yearly lots of 3,000 for the best selling kinds. Lesser sellers are produced in lesser amounts, and stocks of collectors' oddities are limited to no more than a couple dozen. The best sellers are plants that must attract Sunday gardeners

at neighborhood nurseries supplied by Mr. Crump, gardeners who know nothing about ferns except that this frond structure haunts them into buying the plant.

Among the top ferns are: *Asplenium bulbiferum*, *Dryopteris atrata*, *D. erythrosora*, *Polystichum braunii* (the evergreen Japanese form of the species), *P. polyblepharum*, and several *Pteris*, especially the Australian species, *P. pacifica* and *P. umbrosa* (similar to *P. cretica*, that favorite house plant in northern climes).

The thousands of ferns that this nursery turns out each year represent a major part of the country's total production but by no means the whole of it. Several smaller fern nurseries have started up, inspired by Noel Crump's success, and these companies produce thousands more plants.

Editor's note: A visit to Crump's Nursery is on the itinerary of Barbara Hoshizaki's fall tour to Australia and New Zealand. For an itinerary and further information contact:

ETA Travel Associates Inc.
21225 Pacific Coast Highway,
Suite A
Malibu, CA 90265 (310) 456 7346

**Now retired, HFF secretary Jocelyn Horder has done an outstanding job as the current spore exchange director.*



Cyathea dealbata

Annual Fern Evaluation Completed

The fern plantings at our primary garden were evaluated on June 30th. A team of Hardy Fern Foundation members took a long morning and judged each fern grouping according to the same criteria we ask our satellites:

Number of plants alive

Number of plants dead

Average length of new growth

Average overall size

Whether we thought the fern had commercial value

A rating of garden worthiness from 1 to 5, 5 being very good

In all, over 100 separate types were evaluated, with some surprising results. A mild winter and dry spring at the garden have affected the growth of many - some benefited from the mildness, others suffered.

A full and complete report of our findings, along with any conclusions drawn, will appear in the winter issue of this newsletter - the same issue as contains our annual spore list. In future years, that issue as well will contain reports from the various satellite gardens as their evaluations get under way. Watch for it!

Drought Tolerant Garden Ferns for The Pacific Northwest

There are many fern species from other parts of the world that are as drought tolerant as the most durable of our own Pacific Northwest native ferns. These ferns have been observed under a variety of environmental situations for the last decade and we feel they have proven an invaluable addition to any drought tolerant landscape.

It is important to point out that only those plants which have been well established for a minimum of two years can be left without additional watering. This is true of any drought tolerant plant, native or exotic. In most cases these ferns will not only live without additional watering after they are well established but they will maintain a respectable appearance as well.

Adiantum venustum

Athyrium cyclosorum (formerly *f-f* var *cyclosorum*)

Athyrium filix-femina and all its cultivars which include:

'Cristatum', 'Fancy Fronds', 'Frizelliae', 'Minor', 'Minutissimum', 'Vernoniae cristatum', 'Waterfall'

Dryopteris affinis and all its cultivars which include:

'Crispa', 'Crispa gracilis', 'Cristata angustata', 'Cristata The King', 'Revolvans', 'Stableri', 'Stableri crisped'

Dryopteris affinis x filix-mas 'Robust'

Dryopteris dilatata and all its cultivars which include:

'Crispa Whiteside', 'Jimmy Dyce', 'Lepidota cristata', 'Recurved form'

Dryopteris expansa (Pacific NW native)

Dryopteris filix-mas and all its cultivars which include:

'Barnesii', 'Cristata', 'Grandiceps', 'Linearis polydactyla'

Dryopteris x remota (*affinis x expansa*)

Polystichum Andersonii (Pacific NW native)

Polystichum Braunii (Pacific NW Native)

Polystichum munitum (Pacific NW native)

Polystichum setiferum and all its cultivars which include:

'Congestum cristatum', 'Dividilobum', 'Imbricatum', 'Multilobum', 'Rotundatum cristatum'

Compiled by Judith Jones (Fancy Fronds Nursery) and Torben Barfod (Barfod's Hardy Ferns).

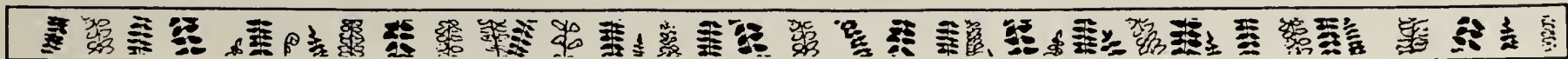
Thank You

The Hardy Fern Foundation board sincerely thanks volunteer Renée Hill who burns the midnight oil on our behalf typing the newsletters and volunteers Sue and Herman Entz who have with good nature and efficiency taken charge of membership matters.

From The Archives

There is a significant paragraph of Prof. Underwood's book in which he says: "The question of the proper use of botanical names is by no means a simple one. The botanical literature of the world must be ransacked before stability can be reached. An obscure local publication in the Italian language, on the plants of Sicily, in this case furnishes the generic name for a plant which grows in the Northeastern States". (This refers to the proposal to substitute *Metteuccia* of Todaro for *Struthiopteris*). When botanists realize the full import of this statement, many will, no doubt, cease chasing will-o'-the-wisps and return to the solid ground of conservative nomenclature. The stability to be gained by absolute priority, proves to be instability itself. If we are not to have stability until all the obscure local botanical publications in the world are ransacked, the case is indeed hopeless. No matter how painstaking a student may be — no matter how carefully he has gone hunting in the shades of obscurity for buried fern names — the day after his work is published, another botanist who took a different path through these same shades may return with another dead name, galvanize it into life and therefore undo the work of his predecessor. And so the merry Science of Nomenclature goes on. We can never be sure that the last change has been made in the name of any genus. From their very obscurity and general worthlessness, most of the pamphlets like Todaro's have been consigned to oblivion, but who will assure us that after we have settled down to "stable nomenclature", some inquisitive student, delving in the wastebasket of time, may not get hold of another pamphlet and treat us to an earthquake. We need stability more than we need priority and the two seem incompatible by present methods. For the ordinary student of ferns who would be understood, there seems no way out of the dilemma except to stick to the names used in all but the very latest botanical text books; to establish a priority of those names who got there first and stayed, and not allow them to be ousted by newcomers, even if they can prove their claims to hoary antiquity. It is not which name ought to prevail, but which one did, that should concern us.

From *The Fern Bulletin*, Vol. IX, No. 3, July 1901. Williard Clute, editor.
Editor's comment: *Some things never change!*



Polystichum Neo-Lobatum

JAMES R. HORROCKS

Po-lis'-ti-kum nē-ō-lō-bā'-tum

The name *Polystichum* (Greek) literally means "many rows" referring to the many rows of sori, arranged in a linear pattern. The species name "*neo-lobatum*" translates: "New (or) Differing - Having lobes or divisions" which is not very descriptive for such an elegant plant. It probably refers to its similarity to *P. aculeatum*, a European species, originally named *P. lobatum*. *Polystichum neo-lobatum* is a strikingly handsome fern, the fronds, fully evergreen, are lance-shaped and beautifully tapered to the apex. They are leathery and glossy, suggestive of the familiar florist fern: *Rumohra adiantiformis*. It is native to Japan, China, Formosa and the Himalayas, but is considered rather rare, especially in Japan. It is found growing on wooded hillsides and has an affinity for rocks.

This species may be confused with several other *Polystichums*, notably: *P. squarrosum*, to which it bears the closest resemblance. However *P. squarrosum*, a native of the Himalayas, is taller and slightly darker and glossier, and according to Rush, has basal scales with dark red centers and pink sori when young. *P. neo-lobatum* is also close to *P. rigens*, a Japanese species, but this fern is slightly lighter green, not as glossy, and the pinnae are further apart. Also *P. rigens* has an unmistakable skunk-like odor on the young fronds. A smaller relative, *P. tsus-simense* (Japan, China, Korea) may cause some confusion but placed side by side,

the differences are apparent, *P. neo-lobatum* being a much larger fern in every way. Reference has been made earlier to *P. aculeatum*, but this species is much lighter green and not glossy. The author has yet another unidentified species from China that is similar but darker green and somewhat spinier. Obviously, for proper identification, great care must be taken.

Description: The rhizome is short, stout, forming a low crown and copiously covered in brown scales. The stipes are rather stout, straw-colored, brownish at the base, shaggy above, and about one quarter the length of the blade. The fronds are from 8 inches to nearly three feet in length, broadly lanceolate, acuminate, that is, gradually tapering to a slender point, bipinnate with the smaller pinnae bipinnatifid. The rachis is densely scaly. The pinnae are leathery and firm, spreading, lanceolate to ovate, and acuminate. The pinnules are obliquely ovate, acute, with a sharp spine at the tip. The pinnule nearest the rachis is enlarged on each pinnae, the frond thereby exhibiting an intriguing pattern from the rather pronounced auricles. The sori are in two series on the pinnules of the upper portion of the frond; the indusia are flat, brownish and entire.

Culture: In the garden, this very attractive species does quite well if the circumneutral soil is rich in leafmold and kept damp. It seems to prefer being nestled among large rocks, producing a rather striking effect. It is quite cold-hardy, surviving temperatures well below zero in the author's garden. The fronds remain green through the winter if covered with snow or leaves. The new growth comes

early in spring, therefore, care should be taken to protect it from frost damage. Propagation is from spores, which are produced copiously and can yield "bumper crops" of young sporelings. This rare and splendid species is a very welcome addition to any woodland garden and is surprisingly easy to grow.



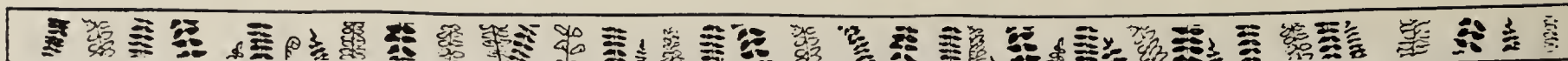
Polystichum Neo-lobatum

References: *Flora of Japan* (1965)
Jisaburo Ohwi. Smithsonian
Institution, Washington, D.C.

Ferns and Fern Allies of Japan (1992)
Edited by Kunio Iwatsuki.
Heibonsha Ltd., Publishers, Tokyo

A Guide to Hardy Ferns (1984)
Richard Rush. British Pteridologi-
cal Society, London

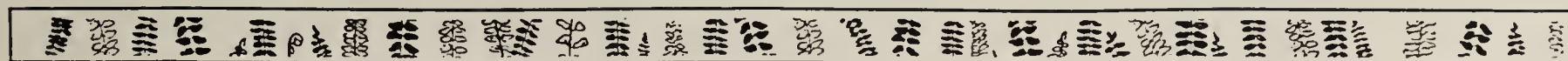
*Special Thanks to Dr. Norio
Sahashi for his kind and generous
help. Toho University, Japan



Ferns of What Was Formerly The USSR

There are excellent fern floras available for most areas of the world. The exception has been the area of the former USSR. The following was prepared in 1988 by Ph. Dr. Zdenek Seibert of Tachov, Czechoslovakia. For simplicity we have omitted the authors.

Species	Range
<i>Adiantum capillus-junonis</i>	USSR?, China
<i>dauidii</i>	USSR?, China
<i>pedatum</i> var. <i>kamtschaticum</i>	Kamchatka
<i>roborowskii</i>	USSR?, China
<i>Asplenium altaicense</i> , syn. <i>sarelii</i> ; syn. <i>sarelii</i> var. <i>altaicense</i>	Altai
<i>anagrammoides</i>	Far East, Ussuri
<i>austrochinense</i>	USSR?, China
<i>daghestanicum</i>	Caucasus, Daghestan
<i>exiguum</i> , syn. <i>sarelii</i>	Altai, China
<i>hassknechtii</i> , syn. <i>hermannii-christii</i>	Caucasus
<i>heufleri</i>	near Novopavlovka
<i>murbeckii</i>	Daghestan
<i>pseudofontanum</i>	Amudarja, Pamiroalai, Afghanistan
<i>pseudolanceolatum</i>	Caucasus
<i>ruta-muraria</i>	Caucasus, Abkhasia, Europe
<i>samarkandense</i>	Middle Asia, Pamiroalai, Samarkand, Revat
<i>sarelii</i>	Altai, Japan
<i>varians</i>	Middle Asia, USSR, Japan, China to India
<i>woronowii</i>	Caucasus, Abkhasia
<i>Athyrium acrostichoides</i>	Primorije, Amur, Ussuri, Sakhalin, Kuriles
<i>austro-ussuriense</i>	Ussuri
<i>coreanum</i>	Primorije
<i>crenatum</i> , syn. <i>Diplazium sibiricum</i>	Siberia, China, Korea, Japan
<i>crenulato-serrulatum</i>	Primorije, Japan, Korea
<i>deltoidofrons</i> , syn. <i>multifidum</i>	USSR, Japan
<i>iseanum</i>	Far East, Ussuri, Kuriles, Kunashir, Iturup, China, Japan
<i>melanolepis</i>	Sakhalin, Kuriles
<i>monomachi</i>	Ussuri
<i>pteroschis</i>	Primorije, Sakhalin, Kamchatka, Kuriles
<i>pycnosorum</i>	Kuriles, Sakhalin, Korea, China, Japan
<i>rubripes</i>	Far East, Primorije, Ussuri
<i>rupestre</i>	Sakhalin, Kuriles, Japan
<i>spinulosum</i>	Primorije, Amur, Ussuri Sakhalin, Japan, Manch.
<i>subspinulosum</i>	Primorije
<i>yokoscense</i>	Kuriles, Kunashir, Shikotan, Ussuri, Primorije, Sakhalin, Japan, China
<i>Blechnum nipponicum</i>	Kuriles, Iturup, Japan
<i>Camptosorus sibiricus</i>	Siberia, Primorije, Amur, Ussuri, Japan, China
<i>Coniogramma fraxinea</i>	Ussuri, Sakhalin, Japan, China
<i>intermedia</i>	Primorije, Sakhalin, Kuriles, Japan
<i>Cryptogramma acrostichoides</i>	Kamchatka, Sakhalin, Kuriles, N. America
<i>raddeana</i>	Primorije
<i>stelleri</i>	Siberia, Kamchatka, N. America
<i>Cyclophorus lingua</i> , syn. <i>Acrostichum lingua</i>	Primorije, Ussuri
<i>Diplazium japonicum</i>	Kuriles, Kunashir, Uturup, Japan
<i>Dryopteris alexeenkoana</i>	Caucasus, Abkhasia
<i>amurensis</i>	Primorije, Amur, Sakhalin, Kuriles, Japan
<i>barbellata</i>	Primorije, Amur, Sakhalin
<i>buschiana</i>	Primorije, Amur, Sakhalin, Kuriles
<i>caucasica</i>	Caucasus
<i>continentalis</i>	Siberia
<i>coreano-montana</i>	Primorije
<i>crassirhizoma</i>	Primorije, Sakhalin, Japan, Korea, Manchuria
<i>fragrans</i>	Siberia, Kamchatka, Sakhalin, Japan, Korea, N. America



<i>fragrans</i> v. <i>lepidota</i>	Siberia
v. <i>remotiuscula</i>	Ussuri
<i>kamtschatica</i>	Kamchatkia
<i>komaroviikoss</i>	Middle Asia
<i>laeta</i> , syn. <i>wladiwostokensis</i>	Primorije
<i>liliana</i>	Colchis
<i>mediterranea</i>	Caucasus
<i>miqueliana</i> , syn. <i>Rumohra miqueliana</i>	Primorije
<i>monticola</i>	Sakhalin, Kuriles, Japan, Korea, Manchuria
<i>mutica</i> syn. <i>Rumohra mutica</i>	Sakhalin, Kuriles
<i>nipponica</i> syn. <i>erythrosora</i> var. <i>cystolepidota</i>	Primorije, Sakhalin, Japan
<i>oreades</i>	Caucasus
<i>raddeana</i>	Caucasus, Azerbaijan
<i>rigida</i>	Caucasus
<i>quelpaertensis</i> syn. <i>kamtschatica</i>	Kuriles, Kamchatka
<i>sichotensis</i>	Ussuri
<i>subtripinnata</i> syn. <i>chinensis</i>	Primorije
<i>Gymnocarpium featschenkoanum</i>	Middle Asia
<i>remoti-pinnatum</i>	Siberia, China
<i>Cheilanthes argentea</i>	Siberia, Japan, China
<i>kuhnii</i>	Primorije, Amur, Japan
<i>persica</i>	Crimea
<i>pteridioides</i> , syn. <i>fragrans</i>	Caucasus, Afghanistan
<i>Lepisorus clathratus</i> , syn. <i>Polypodium clathratum</i>	Kazakhstan, Altai, China
<i>Microlepia pilosella</i> , syn. <i>Trichomanes hirsutum</i>	Ussuri, Japan, China
<i>wilfordii</i> , syn. <i>Davallia wilfordii</i>	Ussuri, Japan, China
<i>Onoclea sensibilis</i> var. <i>interrupta</i>	Kuriles, Sakhalin, to E. Siberia, Japan
<i>Osmunda cinnamomea</i>	Primorije, Amur, Kamchatka, Sakhalin, Kuriles, Japan, N. America
<i>claytoniana</i>	Ussuri, Japan, China
<i>japonica</i>	Sakhalin, Kuriles, Japan
<i>Phyllitis japonica</i>	Primorije, Sakhalin, Kuriles, Kunashir, Japan
<i>Plagiogyria matsumuraeana</i>	Kuriles, Iturup
<i>Pleopeltis ussuriensis</i> , var. <i>distans</i> , syn. <i>Polypodium ussusriense</i>	Kuriles, Siberia, Japan
<i>Pleurosoriopsis makinoi</i>	Primorije, Ussuri, Japan
<i>Polypodium fauriei</i>	Sakhalin, Kuriles, Japan
<i>sarratum</i>	Caucasus, Crimea
<i>thunbergianum</i> , syn. <i>Lepisorus thunbergianus</i>	Kuriles, Kunashir
<i>virginianum</i>	Siberia, N. America
<i>Polystichum craspedosorum</i>	Primorije, Ussuri, Japan
<i>microchlamys</i> , syn. <i>braunii</i> var. <i>kamtschaticum</i>	Kamchatka, Kuriles
<i>tripteron</i>	Primorije, Sakhalin, Kuriles, Japan, China, Manchuria, Korea
<i>woronowii</i>	Caucasus, Abkhasia
<i>Woodsia fragilis</i> , syn. <i>caucasica</i>	Caucasus
<i>glabella</i>	Siberia, Amur, Kamchatka, Sakhalin, N. America
<i>gracillima</i>	Far East?, China
<i>intermedia</i>	Primorije, Amur, Japan
<i>macrochlaena</i>	Ussuri, Japan, China
<i>manchuriensis</i>	Ussuri, Japan, China
<i>polystichoides</i>	Ussuri, Kuriles, Sakhalin, Amur, Manchuria, Japan
<i>sinuata</i>	Ussuri, Japan, China
<i>subcordata</i>	Ussuri, Amur, Japan, Korea
(Common species disregarded)	

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Calendar . . .

LAIF'S FERN AND EXOTIC PLANT SHOW

September 5 - 7, 9:00 to 4:30
Los Angeles County Arboretum.

NORTHWEST HORTICULTURAL SOCIETY FALL SALE

September 25, 10:00 to 6:00; September 26, 10:00 to 3:00
Center for Urban Horticulture, 3501 41st Street N.E., Seattle.

STRYBING ARBORETUM GENERAL SALE (FERNS WILL BE FEATURED)

September 26, 10:00 to 1:00
Arboretum Nursery Area.

Work Party

Come join your board members for an afternoon of grooming and planting at the Rhododendron Species Foundation at Noon on September 15. Please contact Suzanne Hattery for information on participating. (206) 838-4646.

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